UNITED STATES PATENT AND TRADEMARK OFFICE

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 May 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Response to Arguments

1.   Applicant's arguments filed 5/30/2008 have been fully considered but they are

not persuasive.

2.   Re claim 1, the Applicant contends that the prior art cited fails to teach or suggest

obtaining intervals at least partially based on a quantization step size of an

enhancement layer and reconstructed values of the enhancement layer coefficients

associated with at least one of a plurality of layers including said enhancement layer,

other enhancement layers and the base layer. However, the Examiner respectfully

disagrees. Van der Schaar discloses that a decoded version of the compressed base

layer is used to generate an enhancement layer (van der Schaar: column 3, lines 51-

56), represented in Fig. 2 of van der Schaar by the residual calculator 252, which uses

inverse quantized coefficients to generate a residual frame to be encoded in the

enhancement layer (van der Schaar: Fig. 2, residual calculator 252). Van der Schaar

further discloses that the FGS frame encoder 256 located in the enhancement layer

receives quantization parameters from the quantization circuit 216 located in the base

layer (van der Schaar: Fig. 2; column 8, lines 43-48).

3.   Re claim 1, the Applicant also contends that the prior art cited fails to teach or

suggest recomputing the reconstructed values. However, the Examiner respectfully

disagrees. Eshet discloses re-quantizing the original media stream using various

quantizing scales generates compressed representations of the media stream, wherein

the base media layer is generated by the largest (most coarse) quantizing scale, while

other compressed representations of the original media stream (also referred to as

intermediate media layers) are generated by re-quantizing the original media stream by

quantizer values that are smaller than the base quantizing scale but larger than the

original quantizing scale (Eshet: paragraph [0027]).

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

2.   Claims 1-8 and 10-25 are rejected under 35 U.S.C. 103(a) as being

unpatentable over van der Schaar et al. (US 6788740 B1) in view of Eshet et al.

(US 20060244840 A1).

Re **claim 1**, van der Schaar discloses a method comprising: obtaining intervals

for use in scalable media data coding, wherein original media data having a plurality of

original coefficients is presented in a plurality of layers including a base layer (van der

Schaar: Fig. 2), the base layer associated with a plurality of base-layer coefficients

corresponding to original coefficients (van der Schaar: Fig. 2, transform block 214

outputs coefficients), each original coefficient having an original value (van der Schaar:

column 3, lines 65-67, the quantization data used is based on the base layer), and

wherein a binarization procedure is undertaken for forming a plurality of enhancement

layers (van der Schaar: column 3, lines 51-56), each enhancement layer having a

plurality of enhancement layer coefficients corresponding to the base-layer coefficients

and at least partially based upon a predicted value of the enhancement layer

coefficients corresponding to the original coefficients (van der Schaar: column 3, lines

56-64), wherein the intervals are obtained at least partially based on a quantization

step-size of an enhancement layer and reconstructed values of the enhancement layer

coefficients associated with at least one of a plurality of layers including said

enhancement layer, other enhancement layers and the base layer (van der Schaar:

column 3, line 56, through column 4, line 4 and column 4, lines 37-46, upper boundary

indicates setting an interval; column 3, lines 51-56, a decoded version of the

compressed base layer is used to generate an enhancement layer; Fig. 2, residual

calculator 252, uses inverse quantized coefficients to generate a residual frame to be

encoded in the enhancement layer); refining the intervals at least partially based on the

relationship between the predicted values, the original coefficients and the intervals (van

der Schaar: column 9, line 66, through column 10, line 19).

Van der Schaar does not explicitly disclose re-computing the reconstructed

values and reducing the quantization step-size for a next enhancement layer. However,

Eshet discloses a method for scalable representation, storage, transmission, and

reconstruction of media streams, wherein an original media stream is re-quantized

using various quantizing scales with values getting smaller as the number of the

enhancement layer increases (Eshet: paragraph [0027], re-quantizing the original media

stream using various quantizing scales generates compressed representations of the

media stream, wherein the base media layer is generated by the largest (most coarse)

quantizing scale, while other compressed representations of the original media stream

(also referred to as intermediate media layers) are generated by re-quantizing the

original media stream by quantizer values that are smaller than the base quantizing

scale but larger than the original quantizing scale). Since both van der Schaar and

Eshet relate to coding data in a fine granularity scalable scheme, one of ordinary skill in

the art at the time of the invention would have found it obvious to combine their

teachings in order to provide a method for robust transmission of media streams while

efficiently reconstructing a media stream from various representations of the media

stream (Eshet: paragraph [0006]). The combined method of van der Schaar and Eshet

has all of the features of claim 1.

Re **claim 2**, the combined method of van der Schaar and Eshet discloses a

majority of the features of claim 2, as discussed above in claim 1. van der Schaar does

not explicitly disclose computing one of said intervals for each original coefficient to be

encoded based on a reconstructed value corresponding to said each original coefficient

and the quantization step-size. However, Eshet discloses a method for scalable

representation, storage, transmission, and reconstruction of media streams, wherein an

original media stream is re-quantized using various quantizing scales with values

getting smaller as the number of the enhancement layer increases (Eshet: paragraph

[0027]). Since both van der Schaar and Eshet relate to coding data in a fine granularity

scalable scheme, one of ordinary skill in the art at the time of the invention would have

found it obvious to combine their teachings in order to provide a method for robust

transmission of media streams while efficiently reconstructing a media stream from various representations of the media stream (Eshet: paragraph [0006]).

Re **claim 3**, the combined method of van der Schaar and Eshet discloses possibly emitting a value at least partially depending upon the position of said each original coefficient, the position of the predicted value of the enhancement layer coefficient corresponding to said each original coefficient, relative to each other and relative to said interval, for refining said interval at least partially based on the emitted value for providing a refined interval (van der Schaar: column 9, line 66, through column 10, line 19).

Re **claim 4**, the combined method of van der Schaar and Eshet discloses a majority of the features of claim 4, as discussed above in claim 3. van der Schaar does not explicitly disclose that re-computing of the reconstructed value is at least partially based on said refined interval in said enhancement layer. However, Eshet discloses a method for scalable representation, storage, transmission, and reconstruction of media streams, wherein enhancement layer symbols are based on previous layers which may be previous enhancement layers (Eshet: paragraph [0036]). Since both van der Schaar and Eshet relate to coding data in a fine granularity scalable scheme, one of ordinary skill in the art at the time of the invention would have found it obvious to combine their teachings in order to provide a method for robust transmission of media streams while efficiently reconstructing a media stream from various representations of the media stream (Eshet: paragraph [0006]).

Re **claim 5**, the combined method of van der Schaar and Eshet does not explicitly disclose repeating said obtaining, emitting, refining, re-computing and reducing until the quantization step-size reaches a predetermined value. However, the Examiner takes Official Notice that one of ordinary skill in the art at the time of the invention would have found it obvious that the iterative process of scaling the quantization accuracy would continue until the system designer decided that enough detail had been incorporated into the coded signal.

Re **claim 6**, the combined method of van der Schaar and Eshet does not explicitly disclose that the predetermined value is zero. However, the Examiner takes Official Notice that one of ordinary skill in the art at the time of the invention would have found it obvious that if the iterative process of scaling the quantization accuracy continues decreasing the step size, the value would eventually approach zero.

Re **claim 7**, the combined method of van der Schaar and Eshet discloses that the value is a binary digit value (van der Schaar: column 10, lines 28-51).

Re **claim 8**, the combined method of van der Schaar and Eshet discloses that the value is one of two binary digit values of zero and one (van der Schaar: column 10, lines 12-13, state that the lower bound is always zero).

Re **claim 10**, the combined method of van der Schaar and Eshet discloses that the interval has a boundary and wherein said refining of the interval is at least partially based upon whether said each original coefficient falls within the boundary of the interval (van der Schaar: column 9, line 66, through column 10, line 19).

Re **claim 11**, van der Schaar discloses an apparatus comprising: a binarization

module for use in scalable media data coding, wherein original media data having a

plurality of original coefficients is presented in a plurality of layers including a base layer

(van der Schaar: Fig. 2), the base layer associated with a plurality of base-layer

coefficients corresponding to original coefficients (van der Schaar: Fig. 2, transform

block 214 outputs coefficients), each original coefficient having an original value (van

der Schaar: column 3, lines 65-67, the quantization data used is based on the base

layer), and wherein a binarization procedure is undertaken for forming a plurality of

enhancement layers (van der Schaar: column 3, lines 51-56), each enhancement layer

having a plurality of enhancement layer coefficients corresponding to the base-layer

coefficients and at least partially based upon a predicted value of the enhancement

layer coefficients corresponding to the original coefficients (van der Schaar: column 3,

lines 56-64), said device, said binarization module responsive to the original media

data, for providing a signal indicative to binarized data (van der Schaar: Fig. 2, entropy

coder 218 outputs a bitstream); and a coding module, responsive to the signal, for

providing encoded media data at least partially based on the binarized data (van der

Schaar: Fig. 2, entropy coder 218), wherein the binarization module is configured for:

obtaining intervals at least partially based on a quantization step-size of an

enhancement layer and reconstructed values of the enhancement layer coefficients

associated with at least one of a plurality of layers including said enhancement layer,

other enhancement layers and the base layer (van der Schaar: column 3, line 56,

through column 4, line 10; column 4, lines 37-46); refining the intervals at least partially

based on the relationship between the predicted values, the original coefficients and the

intervals (van der Schaar: column 9, line 66, through column 10, line 19).

Van der Schaar does not explicitly disclose re-computing the reconstructed

values (Eshet: paragraph [0027]); and reducing the quantization step-size for a next

coefficient and a next enhancement layer (Eshet: paragraph [0027]). However, Eshet

discloses a method for scalable representation, storage, transmission, and

reconstruction of media streams, wherein an original media stream is re-quantized

using various quantizing scales with values getting smaller as the number of the

enhancement layer increases (Eshet: paragraph [0027], re-quantizing the original media

stream using various quantizing scales generates compressed representations of the

media stream, wherein the base media layer is generated by the largest (most coarse)

quantizing scale, while other compressed representations of the original media stream

(also referred to as intermediate media layers) are generated by re-quantizing the

original media stream by quantizer values that are smaller than the base quantizing

scale but larger than the original quantizing scale). Since both van der Schaar and

Eshet relate to coding data in a fine granularity scalable scheme, one of ordinary skill in

the art at the time of the invention would have found it obvious to combine their

teachings in order to provide a method for robust transmission of media streams while

efficiently reconstructing a media stream from various representations of the media

stream (Eshet: paragraph [0006]). The combined method of van der Schaar and Eshet

has all of the features of claim 11.

Claim 12 has been analyzed and rejected with respect to claim 2 above.

Claim 13 has been analyzed and rejected with respect to claim 3 above.

Claim 14 has been analyzed and rejected with respect to claim 4 above.

Claim 15 has been analyzed and rejected with respect to claim 5 above.

Claim 16 has been analyzed and rejected with respect to claim 8 above.

Re **claim 17**, the combined method of van der Schaar and Eshet discloses a base layer encoder, responsive to the original media data, for providing base layer encoded data to the coding module (van der Schaar: Fig. 2, base layer encoding unit 210).

Re **claim 18**, the combined method of van der Schaar and Eshet discloses that the binarization module comprises a software program for carrying out said obtaining, refining, re-computing, and reducing (van der Schaar: column 6, lines 30-33, the processing is implemented by software).

Claim 19 recites the corresponding computer program for implementing the method of claim 1, and, therefore, has been analyzed and rejected with respect to claim 1 above.

Claim 20 has been analyzed and rejected with respect to claim 2 above.

Claim 21 has been analyzed and rejected with respect to claim 3 above.

Claim 22 has been analyzed and rejected with respect to claim 4 above.

Claim 23 has been analyzed and rejected with respect to claim 5 above.

Re **claim 24**, the combined system of van der Schaar and Eshet discloses an apparatus, comprising: means for obtaining intervals for use in scalable media data coding, wherein original media data having a plurality of original coefficients is presented in a plurality of layers including a base layer (van der Schaar: Fig. 2), the base layer associated with a plurality of base-layer coefficients corresponding to original coefficients (van der Schaar: Fig. 2, transform block 214 outputs coefficients), each original coefficient having an original value (van der Schaar: column 3, lines 65-67, the quantization data is based on the base layer), and wherein a binarization procedure is undertaken for forming a plurality of enhancement layers (van der Schaar: column 3, lines 51-56), each enhancement layer having a plurality of enhancement layer coefficients corresponding to the base-layer coefficients and at least partially based upon a predicted value of the enhancement layer coefficients corresponding to the original coefficients (van der Schaar: column 3, lines 56-64), wherein the intervals are obtained at least partially based on a quantization step-size of an enhancement layer and reconstructed values of the enhancement layer coefficients associated with at least one of a plurality of layers including said enhancement layer, other enhancement layers and the base layer (van der Schaar: column 3, line 56, through column 4, line 10; column 4, lines 37-46); and means for refining the intervals at least partially based on the relationship between the predicted values, the original coefficients and the intervals (van der Schaar: column 9, line 66, through column 10, line 19).

Van der Schaar does not explicitly disclose re-computing the reconstructed values and reducing the quantization step-size for a next enhancement layer. However,

Eshet discloses a method for scalable representation, storage, transmission, and

reconstruction of media streams, wherein an original media stream is re-quantized

using various quantizing scales with values getting smaller as the number of the

enhancement layer increases (Eshet: paragraph [0027], re-quantizing the original media

stream using various quantizing scales generates compressed representations of the

media stream, wherein the base media layer is generated by the largest (most coarse)

quantizing scale, while other compressed representations of the original media stream

(also referred to as intermediate media layers) are generated by re-quantizing the

original media stream by quantizer values that are smaller than the base quantizing

scale but larger than the original quantizing scale). Since both van der Schaar and

Eshet relate to coding data in a fine granularity scalable scheme, one of ordinary skill in

the art at the time of the invention would have found it obvious to combine their

teachings in order to provide a method for robust transmission of media streams while

efficiently reconstructing a media stream from various representations of the media

stream (Eshet: paragraph [0006]). The combined method of van der Schaar and Eshet

has all of the features of claim 24.

Re **claim 25**, the combined system of van der Schaar and Eshet discloses

means for emitting a value at least partially depending upon the position of said each

original coefficient, the position of the predicted value of the enhancement layer

coefficient corresponding to said each original coefficient, relative to each other and

relative to said interval, for refining said interval at least partially based on the emitted

value for providing a refined interval (van der Schaar: column 9, line 66, through column

10, line 19).

3.   Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over van

der Schaar et al. (US 6788740 B1) and Eshet et al. (US 20060244840 A1) as applied

to claims 1-8 and 10-23 above, and further in view of Wu et al. (US 6700933 B1).

Re **claim 9**, the combined method of van der Schaar and Eshet discloses a

majority of the features of claim 9 as discussed in claims 1, 2, 3, 7, and 8 above, but

does not explicitly disclose that said interval has a center, and wherein the emitted

value is one or zero is partially depending upon the position of said each original

coefficient relative to the center of the interval. However, Wu discloses a method with

advance predicted bit-plane coding for progressive fine-granularity scalable (PFGS)

video coding, where quantizer steps have equal intervals with a center and the DCT

coefficients encoded in high enhancement layers are the differences between a high

quality predicted DCT (HQPD) and a dequantized value (which would conventionally be

the center value of the quantization step's range) (Wu: column 17, lines 40-63). Since

van der Schaar, Eshet, and Wu all relate to coding data in a fine granularity scalable

scheme, one of ordinary skill in the art at the time of the invention would have found it

obvious to combine their teachings in order to provide an efficient layered video coding

scheme that adapts to bandwidth fluctuation and also exhibits good error recovery

characteristics (Wu: column 3, lines 27-29).

Conclusion

4.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure:

      a.   Scalable predictive coding method and apparatus

Rose (US 6731811 B1)

      b.   Scalable video encoding

Kirenko (US 20060008002 A1)

      c.   Scalable compression of audio and other signals

Rose et al. (US 20030212551 A1)

Contact

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to CHRISTOPHER FINDLEY whose telephone number is

(571)270-1199. The examiner can normally be reached on Monday through Friday,

8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Marsha D. Banks-Harold can be reached on 571-272-7905. The fax phone

number for the organization where this application or proceeding is assigned is 571-

273-8300.

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USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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